

# **Educational Attainment and the Impact of Financial Crisis on European Youth Unemployment**

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## **Abstract:**

This paper investigates some of the underlying causes of the drastic increase of youth unemployment from before the 2008 financial crisis to after the crisis. The purpose of the study is to discover what determinants had the largest impact on youth unemployment before and after the crisis. The study also attempts to differentiate between youth unemployment on a primary, secondary, and tertiary level of education, and establish the extent that each group is at risk for unemployment. It is expected that the financial crisis will have a positive and significant impact on unemployment for those with lower education levels, while having a much lesser impact on youth who have attained higher education.

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## 1.0 Introduction

It is no secret that financial crisis of 2008 sent waves of economic instability that extended far beyond the United States border. The objective of this study is to analyze which economic factors played the biggest role in determining youth unemployment before and after the crisis. In addition, it attempts to explain, to some extent, the role education plays in youth unemployment before and after the crisis.

By 2009, the average youth unemployment amongst OECD countries had increased to 18.8%, a 5.9% rise on average over the past two years. Many European countries already experiencing relatively high youth unemployment began seeing numbers that sometimes doubled their previous averages, with countries like Spain showcasing 24.7% increase in youth unemployment from the fourth quarter of 2007. Clearly the crisis had a large impact on the state of youth unemployment, and this study helps look further into which economic factors played the biggest role.

Perhaps the most striking aspect of youth unemployment is the high volatility. It would appear that the youth are the ones most at risk during a recessionary period as very few jobs are created during this period, and the jobs leftover generally require much more experience than the youth possess. The volatility can be seen when youth unemployment and overall unemployment viewed next to each other as youth unemployment is consistently above the overall unemployment. For example, overall unemployment in the EU during 2012 reached 8.9% while youth unemployment managed to top out at 18.8%. Breaking it down even more and looking just at Southern Europe yields a youth unemployment rate of 45.4% (Leao and Nogueira). Even when excluding discouraged workers, a youth unemployment rate of 45.4% is very high and be detrimental to the youth in these areas.

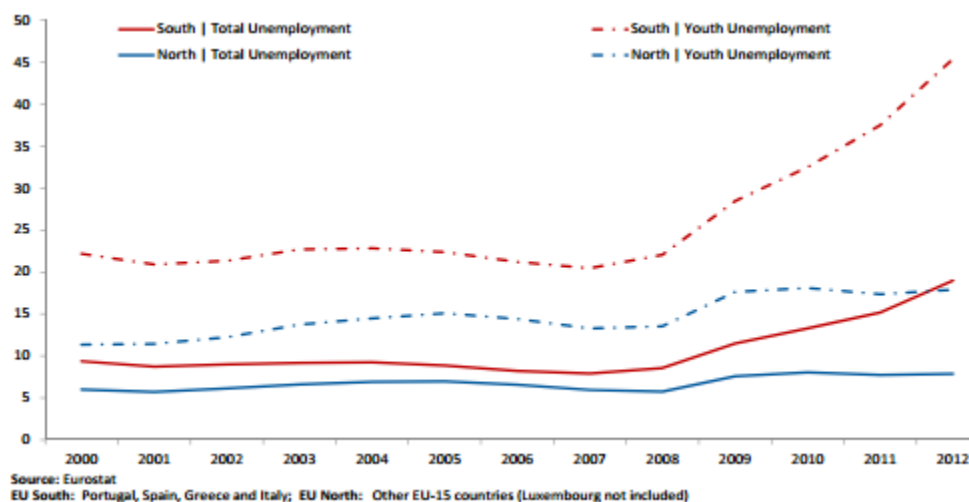
The primary difference between this study and previous research is the focus on education and the different effects each level of education has on youth unemployment. Analyzing the different levels of education can show the impact that education has on youth unemployment, and whether or not education is a key factor in determining youth unemployment. Some previous studies fail to address the critical nature of education, and this study can help fill the gap.

The rest of the paper is organized as follows: Section 2 illustrates the trends found in youth unemployment as well as trends in education achieved. Section 3 provides a brief literature review and section 4 examines the data and estimation methodology. Finally, section 5 presents and analyzes the empirical results followed by the conclusion in section 6.

## 2.0 Trends

In this study, the relevant, ongoing trends revolve around European unemployment and the effects of education on potential employment. As mentioned by Leão and Nogueira (2013), the relationship between overall unemployment and youth unemployment remains a vital one, and this relationship can be seen in the graph below:

Figure 1: European Youth and Overall Unemployment

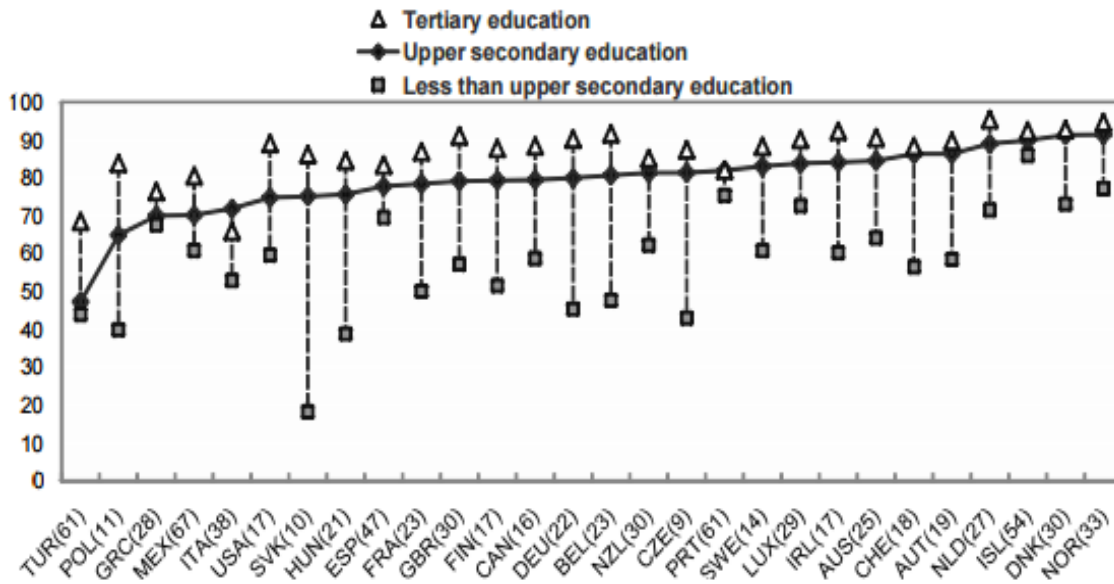


(Source: Leão and Nogueira 2013)

From this graph we can see that youth unemployment is consistently higher than overall unemployment by nearly double in both Southern and Northern Europe. The relationship between overall unemployment and youth unemployment becomes clear in that they both tend to fluctuate in the same direction. However, when looking closer at Southern Europe, it becomes apparent that youth unemployment rises at a rate much higher rate than overall employment, especially after the 2008 financial crisis. While the financial crisis explains the sudden jump in unemployment, it does not necessarily explain why the youth unemployment increases at a much higher rate. One potential cause may be that the financial crisis caused employers to determine which employees they considered most important to the company. With more experience, education, and loyalty to the company, employers may side with older employees when it comes deciding who stays and who goes. Those who have been there the least and have the least amount of experience are the first ones to go, which may explain the increased rate of youth unemployment during the recession.

But how much does education actually matter when it comes to employment? For the youth, at least, it matters a lot. Without much experience or many references, education can be a key determinant in whether or not a youth will be employed as showcased by the graph below:

Figure 2: Youth Employment based on Education



(Source: Scarpeta et al. 2010)

The graph shows the differences in employment in OECD countries based on level of education in 2007. Poland, for example, boasts around 85% employment for their youth attaining tertiary education yet employment for youth with less than an upper secondary education hovers around 40%. In fact, every country listed, aside from Italy, has higher employment for youth who have received tertiary education than any other level of education. The much more surprising aspect of this chart comes in the small gap between upper secondary education and tertiary education. Aside from Turkey, Poland, and maybe the United States, tertiary education has very little advantage over upper secondary education when it comes employment. While income is not a factor in this chart, the small gap in employment between tertiary and secondary education indicates that youth in Europe may be better off without tertiary education. (more info needed; talk with Mohan).

### **3.0 Literature Review**

It is suggested by Choudhry et al. (2010) that the 2008 financial crisis impacted the weakest sectors of the labor market which includes young people. The study analyzed about 70 countries and their youth unemployment from 1980-2000, and concluded that financial crisis does have a significant impact on youth unemployment. That is, during a financial crisis, youth unemployment will increase. The study also pointed out that the impact of the 2008 financial crisis may be slightly delayed yet prominent, though the impact of the crisis on youth unemployment is only negative and significant when the economy has a high income. Choudhry et al. are sure to point out that the results may even be undervalued due to the increase chance the youth will suffer from the discouraged worker effect.

Leão and Nogueira (2013) take a look into the relationship between the overall unemployment rate and the youth unemployment rate and found that youth unemployment depends crucially on the overall unemployment rate. Other factors such as minimum wage and employment legislation were examined but none showed significant results, and only overall employment proved to be significant. The results show that there is not a single way to attack youth unemployment, and the most meaningful way to do so would be to decrease overall unemployment.

Scarpetta et al. (2010) look into key factors behind the 6% increase in youth unemployment in OECD two years after the crisis and address some of the possible solutions. The authors refer to what is known as “scarring”, in which youth with weak education have difficulty finding or holding their first jobs leading to a number of negative outcomes such as decreased happiness or health. In the short term, sufficient support is necessary to keep the youth most at risk from dropping out of the labor market and this would come in the form of

some sort of social income support with a stipulation that the youth must actively be searching for work. Subsidies for employers offering internships and apprenticeships could also be crucial to closing the school-to-work transitional period.

Junankar (2014) also mentions the idea of scarring in his study but he also looks in to the impacts of global financial crisis on unemployment markets. The main results from this study help highlight the volatility of youth unemployment and showed that youth unemployment and overall unemployment are somewhat dependent on each other. Junankar goes on to explain that the volatility of youth unemployment is most likely due to the fact that most youth are working in cyclically sensitive sectors so that when a recession hits, the youth are the first to go. To combat this volatility and increase the employment levels for youth, it is necessary to increase economic growth, particularly in those industries that host most of the youth workers.

Looking at the more extreme case of Spain, Garcia (2011) delves into the reasons as to why Spain experienced such a large increase in youth unemployment after the crisis (46.1% by the second quarter of 2011). The evidence points towards a serious need for education reform as the youth of Spain have an increased tendency to drop out of school early. It also suggests a large gap between the amounts of jobs offered and demanded at each different level of education. By reducing the number of youth that drop out early, there should be a rather large reduction youth unemployment as well. This can be achieved by getting to the at-risk students early and providing support as well as through policy adjustment that would make remaining in the education system more appealing.

#### **4.0 Data and Empirical Methodology**

## 4.1 Data

This study uses panel data from 2004 to 2012, and all data for the dependent variables was obtained from Eurostat and all data for independent variables was obtained from The World Bank. Summary statistics for data are provided in table 1 and further information on variables are provided in Appendices A and B. The countries in this study include Greece, Ireland, Italy, Portugal, Poland, and Spain.

**Table 1: Summary Statistics**

Variable	Observation	Mean	Std. Dev.	Min	Max
YUPP	54	24.985	10.816	11.5	50.8
YUPS	54	18.813	8.282	5.3	46.1
YUPT	54	15.598	7.0594	3.2	40.3
CRISIS	54	.444	.502	0	1
GDPG	54	.963	3.657	-8.864	7.202
GCFG	54	-1.317	11.533	-27.729	27.216
INF	54	2.499	1.568	-4.480	4.800
OPENNESS	54	78.121	38.689	45.587	190.782

## 4.2 Empirical Model

Following Choudhry et al. (2010) this study adapted and modified a model for youth unemployment as follows: This study has added a few aspects to the original model, with the major change being that youth unemployment, the dependent variable, will account for primary, secondary, and tertiary education. This study also changed the *Crisis* variable from a measure of



financial crisis to a much simpler dummy variable to account for before and after the 2008 financial crisis.

The model could be written as follows:

$$YUP_{it} = \beta_1 CRISIS_{it} + \beta_2 GDPG_{it} + \beta_3 GCFG_{it} + \beta_4 INF_{it} + \beta_5 OPENNESS_{it} + U_t$$

$YUP_{it}$  represents the overall youth unemployment rate based on each different level of education, with  $i$  representing the country at time  $t$ . Three different models will be run based on educational attainment, with  $YUPP$  denoting youth unemployment for those with primary education,  $YUPS$  denoting youth unemployment for those with secondary education, and  $YUPT$  denoting youth unemployment for those with tertiary education. In this model, youth unemployment includes all persons from ages 15-29 that are not currently working, willing to work, and seeking out opportunities to work.

The independent variables consist of several variables obtained from The World Bank.  $CRISIS_{it}$  indicates whether or not the financial crisis has occurred yet.  $GDPG_{it}$  is the growth of GDP at time  $t$  in country  $i$ .  $GCFG_{it}$  is the gross capital formation growth at time  $t$  in country  $i$ .  $INF_{it}$  is the inflation rate at time  $t$  in country  $i$ .  $OPENNESS_{it}$  represents trade as a percentage of GDP.

## 5.0 Empirical Results

The empirical results are shown in Table 2 below. The empirical results indicate that the impact of the financial crisis on youth unemployment is both large and positive for those with lesser education, and smaller and insignificant for those with higher education.

**Table 2: Regression Results**

	<b>Dependent Variable</b>		
	YUPP	YUPS	YUPT
<b>CRISIS</b>	6.86802*** (2.8407))	4.758366*** (2.3256)	1.854684 (1.6388)
<b>GDPG</b>	-1.299524*** (.6363)	-1.070905*** (.5209)	-1.058097*** (.3671)
<b>GCFG</b>	0.2007716 (.1749)	0.1588375 (.1432)	0.1509262 (.1009)
<b>INF</b>	-0.7737758 (.7082)	-0.510124 (.5798)	-0.0392163 (.4086)
<b>OPENNESS</b>	0.3377198*** (.1391)	0.2289676** (.1139)	0.097876 (.0802)
<b>Constant</b>	-1.001239 (10.6794))	1.315825 (8.7430)	8.442987 (6.1612)
<b>Obs.</b>	54	54	54
<b>R<sup>2</sup> Within</b>	0.5727	0.5157	0.4371

Note: \*\*\*, \*\*, and \* denote significance at the 1%, 5%, and 10% levels respectively, and standard errors are shown in parenthesis.

The impact of the 2008 financial crisis on youth unemployment in these six countries varied slightly based on educational attainment. Looking at Table 2, those with primary education appear to be the ones most impacted by the crisis while still being statistically significant. The introduction of the crisis caused a 6.86% increase in youth unemployment for

youth in primary education which is considerably high but expected. Those with only primary education would be expected to suffer during a recessionary time given their lack of experience and lack of education. Openness and GDP growth are also statistically significant and in the expected direction. GDP growth played the second biggest role aside from crisis and a 1% increase in GDP caused a 1.3% decrease in youth unemployment as an overall growth of the economy would bring more jobs for the youth. Inflation and investment were statistically insignificant. Inflation may not have played much of a role due to the lesser impact it has on low skill and minimum wage workers as minimum wage cannot be changed in the short term.

The results for youth unemployment for youth with secondary education proved to be similar to that of those with primary education, though the impact of the variables is less significant. The introduction of crisis brought about a 4.76% change in youth unemployment for youth with secondary education which is over 2% less of an impact compared to youth with primary education. It was expected that youth with secondary education would be less impacted by the crisis as the increased education offers more job opportunities. Openness and GDP growth also proved to be statistically significant, and their impact on youth unemployment was lesser for youth with secondary education than youth with primary education. Again, GDP growth proved to be the second biggest factor with a 1% increase in GDPG leading to a 1.07% decrease in YUPS. GCFG and INF remain statistically insignificant.

The results for youth with tertiary education are close to what was expected, and all variables, including CRISIS, are statistically insignificant except for GDPG. The introduction of the CRISIS only caused a 1.85% change in youth unemployment due to the increased education and experience of youth with tertiary education, but for this model the variable was insignificant. The insignificance of CRISIS and other variables may be explained by limited amount of youth

with tertiary education. However, it also points to the idea that crisis is not a huge indicator of youth unemployment for those with tertiary education, which was one of the expected results. In addition, this study expanded the definition of youth from 15-24 years old to 15-29 years old in an attempt to encompass a wider array of youth, but, possibly due to a lack of numbers, it would make sense that overall economic growth, GDGG, is the only variable that had a significant impact on youth unemployment for youth with tertiary education.

It should also be noted that OPENNESS is the only variable that was significant and went against the expected sign. According to Ricardian economics, unemployment and trade openness should be negatively related for all economies. While this may be true in certain economies, it certainly does not hold up in every country. According to a study done by Janiak (2006), one theory behind why trade openness may not always be negatively related for unemployment involves the relationship between globalization and small firms. In European countries, small firms tend to be the ones hiring youth without more consideration of their educational attainment or age, but as exposure to trade increases, larger firms tend to move in and smaller firms are knocked out of the market. In this theory, trade may actually increase overall levels of GDP but only some groups win while others lose, and the youth seem to be one of the groups that comes out losing.

## **6.0 Conclusion**

This study focused on the impact that the financial crisis had on youth unemployment based on education levels, and the results show, as expected, that the financial crisis of 2008 had a large and significant impact on youth unemployment for those with primary and secondary education even with the inclusion of many control variables. The steady high percentage of youth unemployment is concerning not only in the upcoming years but in the long run as well.

The financial crisis has created a generation of youth that are skeptical of their job security in the future, and this mental scarring can take its toll on the youth attempting to find a job. It makes sense that the youth are first to go during a time of recession due to their limited experienced, limited education, low company knowledge, and often low dismissal costs. Not only that, employers are not going to be replacing their previous young employees with other young employees, they will aim for the more experienced and educated workers that now need to find jobs during the time of recession.

As determined by this study, education plays a key role in employment in youth, and many of the youth today are turning to education when they cannot find jobs. It would be incredibly beneficial to have a reform in education at the primary and secondary levels to promote skills and experience that are necessary in today's job market. There has been a push in recent years for skills involving technology and engineering, and current primary and secondary education does not cater to these areas as well as they could. By providing more real world teachings and increasing vocational training, youth without tertiary education may have an easier time finding a job in the current market. However, for youth who do not have the ability to study these areas or simply do not feel comfortable with them, it would be wise to add additional options for trade based jobs at a younger age. In addition, the scarring effect of the current recession could be felt many years down the road, and policy-makers should attempt to reduce the scarring effect by increasing job security. Many youth are being permanently scarred by relying on jobs that have high rates of layoffs, underemployment, or part-time work, and these youth could add much more to society if they fit a job that met their needs. Of course, there should always been a focus on increasing GDP growth to combat unemployment. For the youth, it may be most beneficial to increase GDP growth by increasing internal demand to promote job

growth within the given country. Overall, it seems education plays a key role in determining the rate of employment among youth, and with more youth turning to education in a jobless market, it is important that Europe's educational system can cater to a time in which technology rules the market and competition for entry level jobs is skyrocketing.

### Appendix A: Variable Description and Data Source

Acronym	Description	Data Source
YUPP	Unemployment for youth who have attained primary education (ages 15-29)	Eurostat
YUPS	Unemployment for youth who have attained secondary education (ages 15-29)	Eurostat
YUPT	Unemployment for youth who have attained tertiary education (ages 15-29)	Eurostat
CRISIS	Dummy variable: 0 denotes before the crisis, 1 denotes after the crisis	The World Bank
GDPG	Annual GDP growth	The World Bank
GCFG	Gross Capital Formation Growth	The World Bank
INF	Annual Inflation rate	The World Bank
OPENNESS	Trade as a % of GDP	The World Bank

### Appendix B: Variables and Expected Signs

Acronym	Variable Description	What it captures	Expected Sign
CRISIS	Dummy variable: 0 for before the crisis and 1 after the crisis	Impact of the financial crisis on youth unemployment	+
GDPG	Annual GDP growth	Overall growth of the economy	-
GCFG	Gross Capital Formation Growth	Investments in the given country	+ / -
INF	Annual Inflation rate	Increasing price levels	-
OPENNESS	Trade as a % of GDP	Effects of globalization on youth unemployment	-



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